

PLAINTIFFS' EXHIBIT 3

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Medical Report by Dr. Matthew B. Laurens

Dated

28th January 2019

Area of Expertise

Infectious Diseases, Tropical Medicine, Malaria

On behalf of the Plaintiff

Almedina Spahic

Instructing Solicitor

Scott Michael Moore, Esq.
Moore International Law PLLC
Rockefeller Center
45 Rockefeller Plaza, 20th Floor
New York, New York 10111

Subject

Death due to severe malaria after work travel to Abidjan, Ivory Coast

Written by

Dr. Matthew Laurens, 1 Chancery Square, Baltimore, Maryland, 21218

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Report

1. Introduction

1.1. The Expert

I am Dr. Matthew Brent Laurens. My specialist field is Infectious Diseases, and my clinical research focuses on *Plasmodium falciparum* malaria. Full details of my qualifications and experience entitling me to give expert opinion evidence in this case are in appendix 1.

1.2. Summary background

Mr. Ziga aged 41 years, contracted malaria while traveling to the Ivory Coast from November 24 to December 4, 2015. He was diagnosed late in his illness course, experienced multiple complications of severe malaria, and died on January 13, 2016.

1.3. Summary of my conclusions

There is evidence from the medical and employee records that as a consequence of no pre-travel consultation, no post-travel clinic evaluation for fever and malaria symptoms, and delayed malaria diagnosis, he suffered severe malaria and multiple complications of this illness that ultimately led to his death.

1.4. The parties involved

Ms. Almedina Spahic; plaintiff
ICTJ; defendant

2. The Issues Addressed

2.1. *Plasmodium falciparum* malaria

HZ was diagnosed with the most serious and deadly form of human malaria—*Plasmodium falciparum*. This disease can be fatal within 48 hours if proper treatment is not initiated in a timely manner. Each year, about 500,000 people die of *P. falciparum* malaria, with about 90% of deaths occurring in sub-Saharan Africa.

Malaria is caused by a germ called a parasite, which is distinct from a virus or bacteria. The parasite is found in mosquito salivary glands, or spit glands. Human malaria infection occurs when an infected female *Anopheles* mosquito bites a human and takes a blood meal. The mosquito saliva containing malaria parasites flows into human skin to facilitate the blood meal, and transmits a form of the malaria parasite into the human bloodstream. From the mosquito bite site, the malaria parasite travels to the liver, where it infects liver cells, multiplies, and the infected liver cell bursts to release multiple parasites to infect red blood cells. Infected red blood cells host the parasite, and provide a space for the parasite to multiply again. When the infected red blood cell bursts, it causes signs and symptoms of malaria, including fever, headache, abdominal pain, vomiting, diarrhea, muscle and joint pain, and decreased energy.

In a person who has never had malaria before, the time from mosquito biting to the first symptoms is about 10-12 days. When the infected red blood cell bursts, it releases multiple additional parasites into the blood that infect other red blood cells, continuing the cycle of human malaria and increasing the number and percentage of a person's red blood cells that are infected with the malaria parasite, and that are ultimately destroyed by the parasite. The cyclic bursting of red blood cells continues, occurring daily in the case of *P. falciparum* infections and causes additional fever, headache, abdominal pain, diarrhea, muscle and joint pain, and decreased energy. In people who have never had malaria before, serious complications can develop quickly (within 48 hours), including the following:

- Impaired consciousness or coma
- Inability to walk or sit up without assistance
- Inability to eat
- Seizures (jerking movements of arms and/or legs) that could indicate inflammation in the brain and/or brain swelling
- Difficulty breathing, indicating inflammation and swelling in the lungs
- Hypotensive shock (blood pressure that is critically low)
- Blood in urine, indicating kidney damage
- Low red blood cell count (critical anemia) that can cause low amounts of oxygen to be carried to vital organs and tissues
- Acidotic state of blood (indicating critically low oxygen levels)

Any one of these complications of malaria is considered “severe malaria” according to the World Health Organization definition, and requires urgent intervention, including antimalarial medication given through a vein. Even with effective therapy, 10-30% of

returned travelers with severe malaria die from their illness. Because of the seriousness and time-sensitive nature of the diagnosis, malaria testing should be done with haste and urgency for any traveler with fever who has recently returned from an area where malaria is known to occur.

2.2. Medical Protocol for Travel to the Ivory Coast

For travel to all areas of the Ivory Coast, malaria prophylaxis is recommended by the U.S. Centers for Disease Control (CDC), the World Health Organization (WHO), and the Belgian Federal Public Service Foreign Affairs. Malaria risk in Abidjan, Ivory Coast, where HZ traveled, is present year-round, and increased risk occurs during and immediately after the rainy seasons (April through July and September through December in the south). No vaccine is currently licensed in the U.S., Europe or in the Ivory Coast for malaria prevention.

The cornerstone of malaria prevention for travelers to malaria endemic areas is to take medication to prevent malaria illness. Several options exist, and are generally taken just before travel, during travel, and for a limited time after travel, depending on the medication prescribed. Options for medications for malaria prevention that are available in the U.S. and Europe include atovaquone/proguanil, doxycycline, lariam, and primaquine. All of these medications were available at the time of HZ's 2015 trip to the Ivory Coast, and all are highly effective (>90%) in preventing malaria. The choice of medication is usually made during a pre-travel consultation visit with a travel medicine specialist approximately one month before travel. According to the U.S. CDC, "Travel medicine specialists have in-depth knowledge of immunizations, risks associated with specific destinations, and the implications of traveling with underlying conditions. Therefore, a comprehensive consultation with a travel medicine expert is indicated for any traveler with a complicated health history, special risks (such as traveling at high altitudes or working in refugee camps), or exotic or complicated itineraries."

Additional malaria prevention measures are encouraged for travelers to malaria endemic areas include sleeping under insecticide-treated bed nets, staying in hotels with screens on windows and doors, regular use of long-lasting insecticide applied regularly to exposed areas of the skin, and wearing long pants and long sleeved shirts to limit skin exposed.

2.3. HZ's illness and death timeline

For HZ, he traveled to the Ivory Coast from November 24 – December 4, 2015. Eight days later on December 12, 2015, he experienced symptoms of abdominal pain, vomiting, and fatigue. Three days after symptoms started, he was seen on December 15, 2015 by a general physician. He told the general physician that he had just returned from travel to the Ivory Coast. The general physician diagnosed HZ with a viral illness, told him to take over-the-counter analgesics, and provided a work excuse note for one week (December 14-18, 2015). Three days after this doctor visit, on December 18, 2015, HZ's brother collected him in Brussels, Belgium and brought him via car to Strasbourg, France so that the family could help take care of his illness. Upon arrival to Strasbourg, his family took him to the Clinique St. Odile, where he was noted to be in critical condition with abnormal breathing and was comatose. He was admitted to the intensive care unit where he was diagnosed with severe malaria and a critically high level of malaria parasites in his blood. He received appropriate treatment for severe malaria, and additional medical interventions were initiated to treat the severe malaria complications he experienced. Notably, he experienced: 1) shock associated

with low blood pressure that was treated with medication to increase his blood pressure, 2) kidney failure that was treated with dialysis, 3) liver failure that resulted in abnormal blood clotting and that was treated with transfusions of blood clotting elements that his liver could no longer make, 4) Disseminated Intravascular Coagulation, a condition where blood clots form in the bloodstream where they normally would not form and then block the blood supply to major organs, 5) low platelets and low red blood cells (anemia) treated with multiple platelet and blood transfusions, 6) macrophage activation syndrome, a condition where the human immune system begins to attack and destroy its own human elements including red blood cells, and 7) pneumonia due to HZ being on a mechanical ventilator to breathe for him while he was in a coma. After his malaria infection was successfully treated, around December 28, 2015 HZ's physicians stopped medications used to suppress HZ's level of consciousness. These medications are commonly given to patients on mechanical ventilation to help control the anxiety, pain and agitation associated with being on a ventilator. HZ did not 'wake up', causing doctors to look for a reasons why. An MRI of his brain on December 31 showed multiple areas of bleeding in his brain with other areas that had evidence of no blood flow. The most likely explanation for these MRI findings and inability to wake up is that HZ experienced both stroke with bleeding and loss of blood flow to his brain as a result of liver failure and disseminated intravascular coagulation that occurred as a complication of severe malaria. On January 5, 2016, an electroencephalogram to monitor HZ's brain activity showed slowing of activity on the left and no response to the external environment, including no reaction to purposeful attempts to wake him. He later experienced critically low blood pressure that did not increase with medications. He was pronounced dead on January 13, 2016.

The total number of days that HZ experienced conscious pain and suffering is 7 days, from December 12-18, 2015. He first experienced signs and symptoms of malaria on December 12, 2015. He became comatose on December 18, 2015.

2.4. Pre-travel Preparation

HZ did not provide a receipt for antimalarial medication for the trip to Ivory Coast from November 24 – December 4, 2015. He did take antimalarial medication on a previous 6-day trip to the Ivory Coast (February 23-28, 2014) and was prescribed a limited number of antimalarial tablets (atovaquone/proguanil) for this earlier trip only and did not have enough for additional travel.

According to his health and vaccination records, HZ paid for and received a second yellow fever vaccination at the airport upon arrival to Abidjan, Ivory Coast on November 24, 2015. This confirms that HZ did not receive a pre-travel clinic consultation for the most recent trip from November 24 – December 4, 2015. HZ was previously seen at Travel Clinic, CHU Saint Pierre on February 10, 2014, when he received yellow fever vaccine (Stamaril). One dose of vaccine is all that is required per WHO guidelines. Had HZ been properly prepared for travel to the Ivory Coast before this last trip, he would have been provided with antimalarial prophylaxis, and he would have been told to take his yellow fever vaccination card as required for entry into the Ivory Coast.

2.5. Post-travel Malaria Diagnosis and Treatment

Prompt diagnosis and treatment of malaria in a returned traveler is associated with improved outcomes, including complete recovery in most all patients. Malaria is the most common

diagnosis for returned travelers with fever, is treatable and will not progress to severe malaria if diagnosed and cared for promptly. The inability of general doctors in resource-rich settings to recognize signs and symptoms of malaria contributes unnecessarily to the high number of cases of severe malaria. It is generally recommended that fever in an individual returning from a malaria-endemic area in the previous month should be assessed by an individual with expertise in travel medicine.

Several options for travel medicine consultation exist in Brussels. Physicians are available for both pre-travel and post-travel visits. Had HZ visited any of these clinics before travel, he would have been prescribed antimalarial prophylaxis. Had HZ visited any of these clinics on December 15, 2015 in lieu of visiting the general doctor, he would have been diagnosed and treated for malaria, likely before progression to severe malaria diagnosed four days later on December 19, 2015. Travel clinics available for pre- and post-travel consultation in Brussels include:

1. Travel Clinic CHU St. Pierre
2. Travel Clinic, University Hospital Erasmus
3. Travel Clinic, UZ Brussel
4. Hopitaux Iris Sud (4 travel clinic locations in Brussels)
5. City-Clinic
6. Travel Clinic Brugmann
7. Interregional Hospital Health Centre Edith Cavell

3. My Opinion

- 3.1.** Clearly, HZ suffered *P. falciparum* malaria in December 2015 as a result of his business travel for ICTJ to the Ivory Coast from November 24 to December 4, 2015.
- 3.2.** HZ should have been provided with a pre-travel consultation visit at a travel clinic before his trip. During this visit, he would have been prescribed antimalarial prophylaxis to prevent malaria infection. He also would have been counseled to take other precautions to avoid mosquitoes and to recognize signs and symptoms of malaria both during and after travel.
- 3.3.** HZ should have had a malaria test immediately after he experienced signs and symptoms of malaria on December 12, 2015. He should have been seen in consultation with a specialist in travel medicine who would have ordered a malaria test and initiated appropriate treatment for *P. falciparum* malaria.
- 3.4.** Had HZ been diagnosed with *P. falciparum* malaria on December 15, 2015, it is highly likely that he would have received appropriate treatment and recovered without experiencing serious and long-lasting effects of malaria infection.
- 3.5.** The delay in diagnosis of *P. falciparum* malaria for HZ caused his malaria infection to progress to severe malaria, resulting in multiple complications that led to his death.

4. Statement of Compliance

- 4.1.** I understand that my overriding duty is to assist the court in matters within my expertise, and that this duty overrides any obligation to those instructing their clients or me. I confirm I have complied with that duty and will continue to do so.
- 4.2.** I have done my best, in preparing this report, to be accurate and complete. I have mentioned all matters, which I regard as relevant to the opinions I have expressed.
- 4.3.** I consider that all the matters on which I have expressed an opinion lie within my field of expertise.
- 4.4.** I have drawn to the attention of the court all matters, of which I am aware, which might adversely affect my opinion.
- 4.5.** In preparing and presenting this report, I am not aware of any conflict of interest actual or potential save as expressly disclosed in this report.
- 4.6.** In respect of matters referred to which are not within my personal knowledge, I have indicated the source of such information.
- 4.7.** I have not included anything in this report, which has been suggested to me by anyone, including the lawyers instructing me, without forming my own independent view of the matter.
- 4.8.** Where, in my view, there is a range of reasonable opinion relevant to the opinions I express, I have indicated the extent of the range in the report.
- 4.9.** At the time of signing the report I consider it to be complete and accurate. I will notify those instructing me if, for any reason, I subsequently consider that the report requires any alteration, correction, or qualification.
- 4.10.** I understand that this report will be the evidence that I will give, if required, under oath, subject to any correction or qualification I may make before swearing to its veracity.

5. Statement of Truth

- 5.1.** I confirm that I have made clear which facts and matters referred to in this report are within my own knowledge and which are not. Those that are within my own knowledge I confirm to be true. The opinions I have expressed represent my true and complete professional opinions on the matter to which they refer.



Signed by Dr. Matthew Laurens, MD, MPH

Dated **28th January 2019**

CURRICULUM VITAE
Matthew Brent Laurens, M.D., M.P.H.
Associate Professor of Pediatrics
University of Maryland School of Medicine

Date November 4, 2018

Contact Information

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Foreign Languages: fluent in French and Fongbe

Education

July, 1991	French language	Institut de Touraine Tours, France
May, 1992	B.S. (Biology)	Oglethorpe University Atlanta, Georgia
May, 1996	M.P.H.	The Johns Hopkins University Bloomberg School of Public Health Baltimore, Maryland
June, 2001	M.D.	Mercer University School of Medicine Macon, Georgia

Post Graduate Education and Training

July 2001 – June 2004	Internship and Residency in Pediatrics Charity, Ochsner, and Tulane Hospitals Tulane University School of Medicine, New Orleans, Louisiana
July 2004 – June 2005	Chief Residency in Pediatrics Charity, Ochsner, and Tulane Hospitals Tulane University School of Medicine, New Orleans, Louisiana
July 2005 – June 2008	Fellowship in Pediatric Infectious Diseases and Tropical Pediatrics University of Maryland Medical Center University of Maryland School of Medicine, Baltimore, Maryland Research Mentor: Christopher V. Plowe, M.D., M.P.H.

Certifications

2001-present	Provider, Pediatric Advanced Life Support
2001-2011; 2014-present	Provider, Neonatal Resuscitation Program
2004-2006	Instructor, Pediatric Advanced Life Support
2004-present	Diplomate, American Board of Pediatrics, Pediatrics
2009-present	Diplomate, American Board of Pediatrics, Pediatric Infectious Diseases

Medical Licensures

2002	Inactive	Louisiana
2005	Active	Maryland
2006	Active	Malawi

Employment History

Academic Appointments

9/1996 – 8/1997	Instructor, Department of Community Medicine Mercer University School of Medicine, Macon, Georgia
7/2004 – 6/2005	Clinical Instructor, Department of Pediatrics

	Tulane University School of Medicine, New Orleans, Louisiana
7/2008 – 6/2009	Research Associate, Department of Pediatrics University of Maryland School of Medicine, Baltimore, Maryland
7/2008 – present	Member, Center for Vaccine Development, University of Maryland School of Medicine
7/2009 – 6/2014	Assistant Professor of Pediatrics University of Maryland School of Medicine, Baltimore, Maryland
7/2010 – 6/2014	Assistant Professor of Medicine, Secondary appointment University of Maryland School of Medicine, Baltimore, Maryland
7/2014 – 6/2017	Associate Professor of Pediatrics University of Maryland School of Medicine, Baltimore, Maryland
7/2014 – 6/2017	Associate Professor of Medicine, Secondary appointment University of Maryland School of Medicine, Baltimore, Maryland
7/2017 – present	Associate Professor of Pediatrics, tenure track University of Maryland School of Medicine, Baltimore, Maryland
7/2017 – present	Associate Professor of Medicine, tenure track, Secondary appointment University of Maryland School of Medicine, Baltimore, Maryland

Administrative Appointments

2015 – present	Director, International Clinical Trials Unit, Malaria Research Group, Center for Vaccine Development and Global Health, University of Maryland School of Medicine
2017 – present	Director, Pediatric Infectious Diseases Fellowship Program

Other Employment

8/1992 – 4/1995	Disease Eradication Specialist U.S. Peace Corps, Lalo, Republic of Benin, West Africa
3/1994 – 4/1995	Project Supervisor UNICEF Benin, Bohicon, Republic of Benin, West Africa
1 – 4/1996	Research Assistant The Johns Hopkins University Bloomberg School of Public Health, Baltimore, Maryland
8/2003 – 6/2005	Emergency Room Attending Physician Tulane University Hospital, New Orleans, Louisiana
9/2004 – 6/2005	Emergency Room Attending Physician West Jefferson Medical Center, Marrero, Louisiana
7/2009 – 2/2015	Research Specialist Howard Hughes Medical Institute / Center for Vaccine Development University of Maryland School of Medicine

Professional Society Memberships

2001 – present	American Academy of Pediatrics
2005 – present	American Society of Tropical Medicine and Hygiene
2005 – present	Pediatric Infectious Diseases Society
2018 – present	HIC-Vac Network (Human Infection Challenge)

Honors and Awards

2000 – 2001	Senior Class President, Mercer University School of Medicine, Class of 2001
2001	Community Responsive Physician Award, Mercer University School of Medicine, Department of Community

Medicine

2001 Humanism in Medicine Award, Mercer University School of Medicine

2002-2003 Best Resident in Pediatrics, Owl Club, Tulane University School of Medicine

2004 Resident of the Year Nominee, Medical Center of Louisiana, Charity Hospital and University Hospital, New Orleans, Louisiana

2004 – 2005 Chief Resident, Tulane/Ochsner Pediatric Residency Program

2006 – 2008 NIH Ruth L. Kirschstein National Research Service Award

2007 – 2009 Recipient, National Institutes of Health Loan Repayment Program

2008 Best Fellow Research Presentation, Pediatric Research Day, University of Maryland School of Medicine

2008 – 2009 Burroughs Wellcome Fund/American Society of Tropical Medicine and Hygiene Postdoctoral Fellowship in Tropical Infectious Diseases

2009 – 2010 Recipient, National Institutes of Health Loan Repayment Program, competitive renewal

2010 National Foundation for Infectious Diseases/Sanofi Pasteur 2010 Advanced Vaccinology Course Travel Grant

2011 – 2013 Recipient, National Institutes of Health Loan Repayment Program, competitive renewal

2013 Selected by peers as an outstanding practicing doctor in Washington, DC-Baltimore-Northern Virginia, named to the Super Doctors® Rising StarsSM list

2013 Teaching Commendation in Host Defenses and Infectious Diseases, Parasitology/Virology, in recognition of excellence in teaching by the Class of 2015, University of Maryland School of Medicine

2014 Early Career Reviewer Program, Center for Scientific Review, National Institutes of Health

2014 – 2016 Recipient, National Institutes of Health Loan Repayment Program, competitive renewal

Clinical Activities

2009 – present Pediatric Infectious Disease Specialist
University of Maryland Hospital for Children
Provide clinical care, supervise trainees, and educate pediatric housestaff
Average of 10-15 new patients per week
9 weeks per year

2010 – present Travel Clinic Physician
University of Maryland Medical Center
Provide pre-travel advice and post-travel evaluation

Administrative Service

Institutional Service

2006 – 2008 Member, Physician Design Team, University of Maryland Medical Center
Team member to assist in designing an Integrated Electronic Medical Record System

2008 – present Member, Clinical Competency Committee, Pediatric Infectious Diseases Fellowship Training Program, University of Maryland School of Medicine

2009 – 2014 Independent Safety Monitor, DMID Protocol 08-0012, Immunogenicity of Off-Schedule Dosing of HPV Vaccine

2010 – 2014 Independent Safety Monitor, DMID Protocol 08-0017, Safety and Immunogenicity of Sequential Rotavirus Vaccine Schedules with RotaTeq® and Rotarix®

2010 – present Member, Antimicrobial Subcommittee of the Pharmacy and Therapeutics Committee, University of Maryland Medical Center

2010 – 2013 Alternate Representative, School of Medicine Council, University of Maryland School of Medicine

2010 – present Member, Pediatric Residency Recruitment Committee, University of Maryland School of Medicine

2012 – present Member, Pediatric Fellowship Scholarly Activity Review Committee, University of Maryland School of Medicine

2012 – present Member and University of Maryland Representative, Board of Directors, Tropical Medicine Dinner Club of Baltimore

2013 – 2016 Independent Safety Monitor, DMID Protocol 13-0033, A Phase II Randomized, Double-Blinded, Controlled Study in Healthy Adults to Assess the Safety, Reactogenicity, and Immunogenicity of a Monovalent Influenza A/H7N9

Virus Vaccine Administered at Different Dosages Given With and Without AS03 and MF59 Adjuvants

- 2013 – present Member, School of Medicine Council, University of Maryland School of Medicine
- 2013 – present Panelist Judge, Medical Student Research Day, University of Maryland School of Medicine
- 2014 – present Independent Safety Monitor, DMID Protocol 13-0034, A Phase II Randomized, Partially-Blinded, Controlled Trial in Healthy Adults Aged 65 Years and Older to Assess the Safety, Reactogenicity, and Immunogenicity of an MF59-Adjuvanted, Monovalent Inactivated Influenza A/H7N9 Virus Vaccine Administered Intramuscularly at Different Intervals and Dosages
- 2015 – present Interviewer for Ph.D. applicants to the Graduate Program in Epidemiology and Human Genetics, University of Maryland School of Medicine
- 2016 – present Independent Safety Monitor (alternate), DMID Protocol 14-0013, A Phase II Trial to Evaluate the Safety and Immunogenicity of MENVEO® (Meningococcal Groups A, C, Y and W135 Oligosaccharide Diphtheria CRM197 Conjugate Vaccine) in Pregnant Women
- 2016 – present Independent Safety Monitor (alternate), DMID Protocol 15-0066, A Phase I Randomized, Double-Blind, Controlled Trial in Healthy Adults to Assess the Safety, Reactogenicity, and Immunogenicity of a Monovalent Inactivated Influenza A/H5N8 Virus Vaccine Administered Intramuscularly Given With or Without AS03 or MF59 Adjuvants: Assessment of Immunological Responses and Lymphocyte Interplay
- 2017 Member, Search Committee for Assistant Professor, Institute for Global Health, University of Maryland School of Medicine, full-time faculty position to be permanently located at the Division of Malaria Research clinical trials site in Malawi, Expatriate status
- 2018 Panelist, Global Health Career Panel, Global Health Interest Group, University of Maryland School of Medicine
- 2018 Reviewer, Institute for Clinical and Translational Research (ICTR) ATIP Grant Program, University of Maryland, Baltimore
- 2018 Reviewer, Mock Study Section for NRSA grant applications, Graduate Program in Life Sciences, Office of Postdoctoral Scholars, University of Maryland School of Medicine
- 2018 – present Member, Dissertation Committee, Liana Andronescu, PhD student, Graduate Program in Life Sciences, University of Maryland School of Medicine
- 2018 Member, Search Committee for Assistant or Associate Professor, Department of Microbiology & Immunology and the Center for Vaccine Development and Global Health, University of Maryland School of Medicine, full-time faculty position

Local Service

- 2014 – present Pediatrician Consultant, Downtown Baltimore Child Care Center
- 2015 – present Pediatrician Consultant, Homewood Early Learning Center
- 2015 Downtown Baltimore Child Care Center: discussed need for vaccination policy revision with senior management, drafted new requirement for childhood vaccination for childcare center attendees, led informational session with childcare providers regarding influenza and pertussis vaccination and the benefits of providing ring vaccination among caregivers, 5 contact hours
- 2016 Downtown Baltimore Child Care Center: discussed need for exclusion of children for minor illnesses including conjunctivitis and potential policy revision with senior management, drafted policy revision for conjunctivitis for childcare center attendees, 2 contact hours
- 2016 Interviewed by Maryland Public Television’s Jeff Salkin, Direct Connection, Your Health Segment, “The Zika Virus: How You Get It, What It Does, and How to Avoid It”, February 29, 2016.
- 2016 Participant, Senator Benjamin Cardin’s roundtable discussion on Zika virus preparedness and funding, Johns

National and International Service

- 2005 – present Reviewer, *Antimicrobial Agents and Chemotherapy* (one), *Tropical Medicine & International Health* (one), *African Academy of Science Open Research* (one), *Annals of Internal Medicine* (two), *American Journal of Tropical Medicine and Hygiene* (one/year), *The Pediatric Infectious Disease Journal* (one/2 years), *Journal of Infectious Diseases* (one/2 years), *PLoS One* (2-3/year), *International Journal of Pediatric Otorhinolaryngology* (2-3/year), *Clinical Infectious Diseases* (one/year), *BMC Medicine* (one/year), *The Lancet Infectious Diseases* (one), *Vaccine* (2-3/year), *Cytokine* (one/year), *The Journal of Pediatric Infectious Diseases* (one/year), *African Journal of Infectious Diseases* (1/year), *NPJ Vaccines* (one/year), *AAS Open Research* (one/year) and *The New England Journal of Medicine* (1/year)
- 2005 Question writer, Pediatric Specialty Certification Examination
American Board of Pediatrics
- 2009 Consultant, World Health Organization Initiative for Vaccine Research
Scientific Forum: Progress and Challenges with Whole-Organism Malaria Vaccines
- 2010 Consultant, World Health Organization Initiative for Vaccine Research
Development of Clinical Guidelines for the Design and Conduct of Clinical Malaria Challenge Trials
- 2010 Consultant, World Health Organization Initiative for Vaccine Research
Development of Microscopy Guidelines for the Design and Conduct of Clinical Malaria Challenge Trials
- 2010 Scientific Merit Reviewer, Special Emphasis Panel
Conducting Public Health Research in Kenya
Office of Extramural Research, Centers for Disease Control and Prevention
- 2010 – 2011 Member, Data Safety and Monitoring Board, Radboud University Nijmegen Medical Centre, Nijmegen, The Netherlands, for the clinical trial “Immunization with different doses of *Plasmodium falciparum* sporozoites under chloroquine prophylaxis (ZonMw1)”
- 2011 Scientific Merit Reviewer, Special Emphasis Panel
Conducting Public Health Research in Kenya
Office of Extramural Research, Centers for Disease Control and Prevention
- 2011 – present Laboratory Director, Ndirande Research Clinic Laboratory, Blantyre Malaria Project, Blantyre, Malawi, East Africa
- 2011 – 2013 Member, Data Safety and Monitoring Board, Radboud University Nijmegen Medical Centre, Nijmegen, The Netherlands, for the clinical trial “Immunization with *Plasmodium falciparum* sporozoites under chloroquine versus mefloquine prophylaxis (ZonMw2)”
- 2011 – 2012 Member, Data Safety and Monitoring Board, DMID protocol number 06-0058, for the clinical trial “Experimental Infection with *Haemophilus ducreyi*”
- 2011 – 2012 Member, Data Safety and Monitoring Board, DMID protocol number 06-0027, for the clinical trial “Evaluation of isogenic mutants in experimental human infection with *Haemophilus ducreyi*”
- 2012 – 2014 Member, Data Safety and Monitoring Board, Radboud University Nijmegen Medical Centre, Nijmegen, The Netherlands, for the clinical trial “Re-exposure of previously immunized and challenged human volunteers to a heterologous strain of *P. falciparum* sporozoites (TIP4)”
- 2012 – present Member, Safety Oversight Committee, DMID protocol number 06-0058, for the clinical trial “Experimental Infection with *Haemophilus ducreyi*”
- 2012 – present Member, Safety Oversight Committee, DMID protocol number 06-0027, for the clinical trial “Evaluation of isogenic mutants in experimental human infection with *Haemophilus ducreyi*”
- 2013 Scientist Reviewer, Peer Reviewed Medical Research Program, Clinical Trial Award
Department of Defense Congressionally Directed Medical Research Program

2014	Reviewer, Special Emphasis Panel ZGH1 HMS 03 Conducting Public Health Research in China, and Conducting Public Health Research in Thailand by the Ministry of Public Health (MOPH) Center for Global Health, Centers for Disease Control and Prevention
2014	Scientist Reviewer, Peer Reviewed Medical Research Program, Malaria Discovery Award Department of Defense Congressionally Directed Medical Research Program
2014 – 2015	Member, Data Safety and Monitoring Board, Sabin Vaccine Institute, Washington, D.C., for the clinical trial “Phase 1 Study of the Safety and Immunogenicity of <i>Na</i> -GST-1/Alhydrogel®, with or without a CpG ODN adjuvant, in Healthy Adults”
2014 – present	Judge, Young Investigator Award Competition, Annual Meeting of the American Society of Tropical Medicine and Hygiene
2015	Scientific Merit Reviewer, Special Emphasis Panel ZGH1 HMS 01 Conducting Public Health Research in Kenya Center for Global Health, Centers for Disease Control and Prevention
2015	Scientist Reviewer, Medical Research Council, UK, Biomedical Catalyst DPFS/DCS
2015	Scientific Merit Reviewer, Special Emphasis Panel, 2016/01 Council ZGH1 HMS 01 Conducting Public Health Research in Georgia Center for Global Health, Centers for Disease Control and Prevention
2015 – present	Expert consultant to law firm on malpractice cases regarding infectious diseases
2016	Reviewer, Special Emphasis Panel/Scientific Review Group 2016/05 ZAI1 RRS-M (M1) National Institute of Allergy and Infectious Diseases Special Emphasis Panel
2016 – 2017	Associate Editor, Clinical and Vaccine Immunology, American Society of Microbiology
2016	Scientist Reviewer, Peer Reviewed Medical Research Program, Malaria Review Panel Department of Defense Congressionally Directed Medical Research Program
2016	External Reviewer, New surveillance tool for malaria elimination in Bangladesh, China and Myanmar International Centre for Diarrhoeal Disease Research, Bangladesh
2016	Workshop Panelist, Clinical Trial Design Considerations for Malaria Drug Development, U.S. Food and Drug Administration, Silver Spring, Maryland, June 30, 2016
2016	Scientific Merit Reviewer, Assistant Secretary of Defense for Health Affairs/Defense Health Agency/Uniformed Services University of the Health Sciences/Center for Global Health Engagement Research Program (GHESPR16)
2016	Scientific Organizing Committee Member, Second International Alliance for Biological Standardization (IABS) Human Challenge Trial Workshop
2016	Participant, 3 rd Global Task Force for Cholera Control (GTFCC) Oral Cholera Vaccine (OCV) Working Group Meeting, December 14, 2016, Geneva, Switzerland
2016 – present	Member, Global Burden of Disease collaborator network, Institute for Health Metrics and Evaluation
2017	Scientist Reviewer, FY 18 Military Infectious Diseases Research Program (MIDRP), Panel F- Malaria Vaccine Research
2017 – present	Independent Medical Reviewer, State and Federally Mandated External Medical Reviews
2017	Expert consultant to GE Oil & Gas for malaria diagnostics, treatment and prophylaxis

2017 Scientist Reviewer, Peer Reviewed Medical Research Program, Malaria Review Panel
Department of Defense Congressionally Directed Medical Research Program

2017 Scientist Reviewer, Peer Reviewed Medical Research Program, Malaria Discovery Award Review Panel
Department of Defense Congressionally Directed Medical Research Program

2017 Temporary Member, Vaccines Against Microbial Diseases Study Section, Immunology Integrated Review Group,
2018/01 VMD, Center for Scientific Review, National Institutes of Health

2017 – 2018 Reviewer, Special Emphasis Panel/Scientific Review Group 2018/05 ZAI1 MFH-M (M1)
National Institute of Allergy and Infectious Diseases Special Emphasis Panel

2017 – present Member, Education Committee, Pediatric Infectious Diseases Society (PIDS)

2018 Reviewer, Special Emphasis Panel/Scientific Review Group 2018/05 ZRG1 IDM-X (02) M
National Institute of Allergy and Infectious Diseases Special Emphasis Panel

2018 Reviewer, National Fellowships Committee for Graduate Women in Science

2018 Reviewer, Special Emphasis Panel/Scientific Review Group 2018/05 ZAI1 MFH-M (S2)
National Institute of Allergy and Infectious Diseases Special Emphasis Panel

2018 Scientist Reviewer, Peer Reviewed Medical Research Program, Malaria Review Panel
Department of Defense Congressionally Directed Medical Research Program

2018 Scientist Reviewer, Peer Reviewed Medical Research Program, Malaria Discovery Award Review Panel
Department of Defense Congressionally Directed Medical Research Program

2018 Scientist Reviewer, Else Kröner-Fresenius Foundation, Bad Homburg, Germany

2018 Scientist Reviewer, Transforming Technology for the Warfighter Program 2018/08 ZRG1 ETTN-U (84), Uniformed
Services University of Health Sciences, Bethesda, Maryland

2018 Scientist Reviewer, Raine Priming Grant, Raine Medical Research Foundation, The University of Western Australia,
Nedlands, Western Australia

2018 Scientist Reviewer, Military Infectious Disease peer review panel, Joint Warfighter Medical Research Program,
Department of Defense Congressionally Directed Medical Research Program

2018 Scientist Reviewer, Vaccines Against Microbial Diseases Study Section, Immunology Integrated Review Group,
2019/01 VMD, Center for Scientific Review, National Institutes of Health

Teaching Service

Mercer University School of Medicine

1996 – 1997 Instructor, Biostatistics, Epidemiology and Research Design courses (1st – 4th year medical students)
80 contact hours per year

National Center for Health Statistics, Applied Statistics Training Institute

1997 Lecturer, Small Area Analysis, (30 State and local health department personnel), Denver, Colorado, 20 contact
hours

Tulane University School of Medicine, New Orleans, Louisiana

2004 – 2005 Coordinator, Pediatrics Core Lecture Series Conference, (45 pediatric housestaff and 15 medical students), 5
hours/week

2004 – 2005 Lecturer and Facilitator, Pediatrics Morning Report Conference, (20 pediatric housestaff, medical students and
faculty), 5 hours/week

2004 – 2005 Lecturer, Pediatrics Board Review Conference, (30 pediatric housestaff and medical students), 10 contact hours

2005 Course Co-Director and Lecturer, Introduction to Pediatrics, (35 physical therapy students), 15 contact hours

University of Maryland, Baltimore

2006 Facilitator, New Capabilities, Emerging Issues and Responsible Conduct in Data Management
4 contact hours

University of Maryland Medical Center

2007 Lecturer, Microbiology Laboratory Conference, Cystic Fibrosis and Common Pathogens
1 contact hour

University of Maryland School of Medicine

Clinical

2005 – 2008 Clinical Infectious Diseases Fellow, University of Maryland Medical Center
Supervised 1-3 residents and/or medical students, weekly conferences

2009 – present Attending physician, Pediatric Infectious Diseases inpatient and outpatient consultations
University of Maryland Hospital for Children, 1 fellow and 1-3 residents or medical students 9 weeks per year
Evaluation summary: surpasses expectations routinely in providing appropriate team guidance and supervision, modeling life-long learning, creating an environment conducive to learning, communicating with patients and families, and in modeling professionalism and ethical behavior

2010 – present Attending physician, Travel Clinic, University of Maryland Travel Clinic
1 fellow or resident
8 sessions per year

Medical Student Teaching

2007 – present Facilitator, MSPR 520 Host Defense and Infectious Diseases, Small Group Sessions (20, 2nd year medical students),
7 contact hours per year

2009 – 2013 Instructor, MSPR 520 Host Defense and Infectious Diseases (40, 2nd year medical students)
Topic: Malaria microscopy, 3 contact hours

2009 – present Lecturer, MSPR 520 Host Defense and Infectious Diseases (150, 2nd year medical students)
Topic: Enteroviruses, 1 contact hour
Evaluation summary: Awarded Teaching Commendation in recognition of excellence in teaching by the Class of 2015, ranked above average by 79% of students

2010 – present Lecturer, MSPR 520 Host Defense and Infectious Diseases (150, 2nd year medical students)
Topic: Other Viral Causes of Diarrhea, 1 contact hour

2010 – 2011 Lecturer, Malaria lecture series (6, 1st year medical students in Doris Duke Summer Fellowship Program)
Topics: HIV-malaria interactions, malaria microscopy, 4 contact hours

2015 – present Instructor, MSPR 520 Host Defense and Infectious Diseases (150, 2nd year medical students)
Topic: Parasitology laboratory practicum, 4 contact hours

2016 – present Lecturer, MSPR 520 Host Defense and Infectious Diseases (150, 2nd year medical students)
Topic: Malaria, 1 contact hour

Graduate Student Teaching

2013 Facilitator, Introduction to Vaccinology Course, GPILS PREV 627, 30 students
Topic: The Anti-Vaccine Movement, 1 contact hour

2015 – present Facilitator, Research Ethics CIPP907, University of Maryland Baltimore Center for Interprofessional Education,
Small Group Sessions (12, interprofessional students), 2-4 contact hours per year

2015 – present Lecturer, Introduction to Vaccinology Course, GPILS PREV 627, 30 students
Topic: Clinical Evaluation Phases 1, 2, 3, 4; 1 contact hour

Resident Teaching

CV for Matthew Brent Laurens, MD, MPH

CURRICULUM VITAE
Matthew Brent Laurens, M.D., M.P.H.
Associate Professor of Pediatrics
University of Maryland School of Medicine

Date November 4, 2018

Contact Information

Center for Vaccine Development and Global Health
685 W. Baltimore St, HSF I 480
Baltimore, Maryland 21201
Tel: (410) 706-5462 Fax: (410) 706-1204
e-mail: mllaurens@som.umaryland.edu
Foreign Languages: fluent in French and Fongbe

Education

July, 1991	French language	Institut de Touraine Tours, France
May, 1992	B.S. (Biology)	Oglethorpe University Atlanta, Georgia
May, 1996	M.P.H.	The Johns Hopkins University Bloomberg School of Public Health Baltimore, Maryland
June, 2001	M.D.	Mercer University School of Medicine Macon, Georgia

Post Graduate Education and Training

July 2001 – June 2004	Internship and Residency in Pediatrics Charity, Ochsner, and Tulane Hospitals Tulane University School of Medicine, New Orleans, Louisiana
July 2004 – June 2005	Chief Residency in Pediatrics Charity, Ochsner, and Tulane Hospitals Tulane University School of Medicine, New Orleans, Louisiana
July 2005 – June 2008	Fellowship in Pediatric Infectious Diseases and Tropical Pediatrics University of Maryland Medical Center University of Maryland School of Medicine, Baltimore, Maryland Research Mentor: Christopher V. Plowe, M.D., M.P.H.

Certifications

2001-present	Provider, Pediatric Advanced Life Support
2001-2011; 2014-present	Provider, Neonatal Resuscitation Program
2004-2006	Instructor, Pediatric Advanced Life Support
2004-present	Diplomate, American Board of Pediatrics, Pediatrics
2009-present	Diplomate, American Board of Pediatrics, Pediatric Infectious Diseases

Medical Licensures

2002	Inactive	Louisiana
2005	Active	Maryland
2006	Active	Malawi

Employment History

Academic Appointments

9/1996 – 8/1997	Instructor, Department of Community Medicine Mercer University School of Medicine, Macon, Georgia
7/2004 – 6/2005	Clinical Instructor, Department of Pediatrics

	Tulane University School of Medicine, New Orleans, Louisiana
7/2008 – 6/2009	Research Associate, Department of Pediatrics University of Maryland School of Medicine, Baltimore, Maryland
7/2008 – present	Member, Center for Vaccine Development, University of Maryland School of Medicine
7/2009 – 6/2014	Assistant Professor of Pediatrics University of Maryland School of Medicine, Baltimore, Maryland
7/2010 – 6/2014	Assistant Professor of Medicine, Secondary appointment University of Maryland School of Medicine, Baltimore, Maryland
7/2014 – 6/2017	Associate Professor of Pediatrics University of Maryland School of Medicine, Baltimore, Maryland
7/2014 – 6/2017	Associate Professor of Medicine, Secondary appointment University of Maryland School of Medicine, Baltimore, Maryland
7/2017 – present	Associate Professor of Pediatrics, tenure track University of Maryland School of Medicine, Baltimore, Maryland
7/2017 – present	Associate Professor of Medicine, tenure track, Secondary appointment University of Maryland School of Medicine, Baltimore, Maryland

Administrative Appointments

2015 – present	Director, International Clinical Trials Unit, Malaria Research Group, Center for Vaccine Development and Global Health, University of Maryland School of Medicine
2017 – present	Director, Pediatric Infectious Diseases Fellowship Program

Other Employment

8/1992 – 4/1995	Disease Eradication Specialist U.S. Peace Corps, Lalo, Republic of Benin, West Africa
3/1994 – 4/1995	Project Supervisor UNICEF Benin, Bohicon, Republic of Benin, West Africa
1 – 4/1996	Research Assistant The Johns Hopkins University Bloomberg School of Public Health, Baltimore, Maryland
8/2003 – 6/2005	Emergency Room Attending Physician Tulane University Hospital, New Orleans, Louisiana
9/2004 – 6/2005	Emergency Room Attending Physician West Jefferson Medical Center, Marrero, Louisiana
7/2009 – 2/2015	Research Specialist Howard Hughes Medical Institute / Center for Vaccine Development University of Maryland School of Medicine

Professional Society Memberships

2001 – present	American Academy of Pediatrics
2005 – present	American Society of Tropical Medicine and Hygiene
2005 – present	Pediatric Infectious Diseases Society
2018 – present	HIC-Vac Network (Human Infection Challenge)

Honors and Awards

2000 – 2001	Senior Class President, Mercer University School of Medicine, Class of 2001
2001	Community Responsive Physician Award, Mercer University School of Medicine, Department of Community

Medicine

2001 Humanism in Medicine Award, Mercer University School of Medicine

2002-2003 Best Resident in Pediatrics, Owl Club, Tulane University School of Medicine

2004 Resident of the Year Nominee, Medical Center of Louisiana, Charity Hospital and University Hospital, New Orleans, Louisiana

2004 – 2005 Chief Resident, Tulane/Ochsner Pediatric Residency Program

2006 – 2008 NIH Ruth L. Kirschstein National Research Service Award

2007 – 2009 Recipient, National Institutes of Health Loan Repayment Program

2008 Best Fellow Research Presentation, Pediatric Research Day, University of Maryland School of Medicine

2008 – 2009 Burroughs Wellcome Fund/American Society of Tropical Medicine and Hygiene Postdoctoral Fellowship in Tropical Infectious Diseases

2009 – 2010 Recipient, National Institutes of Health Loan Repayment Program, competitive renewal

2010 National Foundation for Infectious Diseases/Sanofi Pasteur 2010 Advanced Vaccinology Course Travel Grant

2011 – 2013 Recipient, National Institutes of Health Loan Repayment Program, competitive renewal

2013 Selected by peers as an outstanding practicing doctor in Washington, DC-Baltimore-Northern Virginia, named to the Super Doctors® Rising StarsSM list

2013 Teaching Commendation in Host Defenses and Infectious Diseases, Parasitology/Virology, in recognition of excellence in teaching by the Class of 2015, University of Maryland School of Medicine

2014 Early Career Reviewer Program, Center for Scientific Review, National Institutes of Health

2014 – 2016 Recipient, National Institutes of Health Loan Repayment Program, competitive renewal

Clinical Activities

2009 – present Pediatric Infectious Disease Specialist
University of Maryland Hospital for Children
Provide clinical care, supervise trainees, and educate pediatric housestaff
Average of 10-15 new patients per week
9 weeks per year

2010 – present Travel Clinic Physician
University of Maryland Medical Center
Provide pre-travel advice and post-travel evaluation

Administrative Service

Institutional Service

2006 – 2008 Member, Physician Design Team, University of Maryland Medical Center
Team member to assist in designing an Integrated Electronic Medical Record System

2008 – present Member, Clinical Competency Committee, Pediatric Infectious Diseases Fellowship Training Program, University of Maryland School of Medicine

2009 – 2014 Independent Safety Monitor, DMID Protocol 08-0012, Immunogenicity of Off-Schedule Dosing of HPV Vaccine

2010 – 2014 Independent Safety Monitor, DMID Protocol 08-0017, Safety and Immunogenicity of Sequential Rotavirus Vaccine Schedules with RotaTeq® and Rotarix®

2010 – present Member, Antimicrobial Subcommittee of the Pharmacy and Therapeutics Committee, University of Maryland Medical Center

2010 – 2013 Alternate Representative, School of Medicine Council, University of Maryland School of Medicine

2010 – present Member, Pediatric Residency Recruitment Committee, University of Maryland School of Medicine

2012 – present Member, Pediatric Fellowship Scholarly Activity Review Committee, University of Maryland School of Medicine

2012 – present Member and University of Maryland Representative, Board of Directors, Tropical Medicine Dinner Club of Baltimore

2013 – 2016 Independent Safety Monitor, DMID Protocol 13-0033, A Phase II Randomized, Double-Blinded, Controlled Study in Healthy Adults to Assess the Safety, Reactogenicity, and Immunogenicity of a Monovalent Influenza A/H7N9

Virus Vaccine Administered at Different Dosages Given With and Without AS03 and MF59 Adjuvants

- 2013 – present Member, School of Medicine Council, University of Maryland School of Medicine
- 2013 – present Panelist Judge, Medical Student Research Day, University of Maryland School of Medicine
- 2014 – present Independent Safety Monitor, DMID Protocol 13-0034, A Phase II Randomized, Partially-Blinded, Controlled Trial in Healthy Adults Aged 65 Years and Older to Assess the Safety, Reactogenicity, and Immunogenicity of an MF59-Adjuvanted, Monovalent Inactivated Influenza A/H7N9 Virus Vaccine Administered Intramuscularly at Different Intervals and Dosages
- 2015 – present Interviewer for Ph.D. applicants to the Graduate Program in Epidemiology and Human Genetics, University of Maryland School of Medicine
- 2016 – present Independent Safety Monitor (alternate), DMID Protocol 14-0013, A Phase II Trial to Evaluate the Safety and Immunogenicity of MENVEO® (Meningococcal Groups A, C, Y and W135 Oligosaccharide Diphtheria CRM197 Conjugate Vaccine) in Pregnant Women
- 2016 – present Independent Safety Monitor (alternate), DMID Protocol 15-0066, A Phase I Randomized, Double-Blind, Controlled Trial in Healthy Adults to Assess the Safety, Reactogenicity, and Immunogenicity of a Monovalent Inactivated Influenza A/H5N8 Virus Vaccine Administered Intramuscularly Given With or Without AS03 or MF59 Adjuvants: Assessment of Immunological Responses and Lymphocyte Interplay
- 2017 Member, Search Committee for Assistant Professor, Institute for Global Health, University of Maryland School of Medicine, full-time faculty position to be permanently located at the Division of Malaria Research clinical trials site in Malawi, Expatriate status
- 2018 Panelist, Global Health Career Panel, Global Health Interest Group, University of Maryland School of Medicine
- 2018 Reviewer, Institute for Clinical and Translational Research (ICTR) ATIP Grant Program, University of Maryland, Baltimore
- 2018 Reviewer, Mock Study Section for NRSA grant applications, Graduate Program in Life Sciences, Office of Postdoctoral Scholars, University of Maryland School of Medicine
- 2018 – present Member, Dissertation Committee, Liana Andronescu, PhD student, Graduate Program in Life Sciences, University of Maryland School of Medicine
- 2018 Member, Search Committee for Assistant or Associate Professor, Department of Microbiology & Immunology and the Center for Vaccine Development and Global Health, University of Maryland School of Medicine, full-time faculty position

Local Service

- 2014 – present Pediatrician Consultant, Downtown Baltimore Child Care Center
- 2015 – present Pediatrician Consultant, Homewood Early Learning Center
- 2015 Downtown Baltimore Child Care Center: discussed need for vaccination policy revision with senior management, drafted new requirement for childhood vaccination for childcare center attendees, led informational session with childcare providers regarding influenza and pertussis vaccination and the benefits of providing ring vaccination among caregivers, 5 contact hours
- 2016 Downtown Baltimore Child Care Center: discussed need for exclusion of children for minor illnesses including conjunctivitis and potential policy revision with senior management, drafted policy revision for conjunctivitis for childcare center attendees, 2 contact hours
- 2016 Interviewed by Maryland Public Television’s Jeff Salkin, Direct Connection, Your Health Segment, “The Zika Virus: How You Get It, What It Does, and How to Avoid It”, February 29, 2016.
- 2016 Participant, Senator Benjamin Cardin’s roundtable discussion on Zika virus preparedness and funding, Johns

National and International Service

- 2005 – present Reviewer, *Antimicrobial Agents and Chemotherapy* (one), *Tropical Medicine & International Health* (one), *African Academy of Science Open Research* (one), *Annals of Internal Medicine* (two), *American Journal of Tropical Medicine and Hygiene* (one/year), *The Pediatric Infectious Disease Journal* (one/2 years), *Journal of Infectious Diseases* (one/2 years), *PLoS One* (2-3/year), *International Journal of Pediatric Otorhinolaryngology* (2-3/year), *Clinical Infectious Diseases* (one/year), *BMC Medicine* (one/year), *The Lancet Infectious Diseases* (one), *Vaccine* (2-3/year), *Cytokine* (one/year), *The Journal of Pediatric Infectious Diseases* (one/year), *African Journal of Infectious Diseases* (1/year), *NPJ Vaccines* (one/year), *AAS Open Research* (one/year) and *The New England Journal of Medicine* (1/year)
- 2005 Question writer, Pediatric Specialty Certification Examination
American Board of Pediatrics
- 2009 Consultant, World Health Organization Initiative for Vaccine Research
Scientific Forum: Progress and Challenges with Whole-Organism Malaria Vaccines
- 2010 Consultant, World Health Organization Initiative for Vaccine Research
Development of Clinical Guidelines for the Design and Conduct of Clinical Malaria Challenge Trials
- 2010 Consultant, World Health Organization Initiative for Vaccine Research
Development of Microscopy Guidelines for the Design and Conduct of Clinical Malaria Challenge Trials
- 2010 Scientific Merit Reviewer, Special Emphasis Panel
Conducting Public Health Research in Kenya
Office of Extramural Research, Centers for Disease Control and Prevention
- 2010 – 2011 Member, Data Safety and Monitoring Board, Radboud University Nijmegen Medical Centre, Nijmegen, The Netherlands, for the clinical trial “Immunization with different doses of *Plasmodium falciparum* sporozoites under chloroquine prophylaxis (ZonMw1)”
- 2011 Scientific Merit Reviewer, Special Emphasis Panel
Conducting Public Health Research in Kenya
Office of Extramural Research, Centers for Disease Control and Prevention
- 2011 – present Laboratory Director, Ndirande Research Clinic Laboratory, Blantyre Malaria Project, Blantyre, Malawi, East Africa
- 2011 – 2013 Member, Data Safety and Monitoring Board, Radboud University Nijmegen Medical Centre, Nijmegen, The Netherlands, for the clinical trial “Immunization with *Plasmodium falciparum* sporozoites under chloroquine versus mefloquine prophylaxis (ZonMw2)”
- 2011 – 2012 Member, Data Safety and Monitoring Board, DMID protocol number 06-0058, for the clinical trial “Experimental Infection with *Haemophilus ducreyi*”
- 2011 – 2012 Member, Data Safety and Monitoring Board, DMID protocol number 06-0027, for the clinical trial “Evaluation of isogenic mutants in experimental human infection with *Haemophilus ducreyi*”
- 2012 – 2014 Member, Data Safety and Monitoring Board, Radboud University Nijmegen Medical Centre, Nijmegen, The Netherlands, for the clinical trial “Re-exposure of previously immunized and challenged human volunteers to a heterologous strain of *P. falciparum* sporozoites (TIP4)”
- 2012 – present Member, Safety Oversight Committee, DMID protocol number 06-0058, for the clinical trial “Experimental Infection with *Haemophilus ducreyi*”
- 2012 – present Member, Safety Oversight Committee, DMID protocol number 06-0027, for the clinical trial “Evaluation of isogenic mutants in experimental human infection with *Haemophilus ducreyi*”
- 2013 Scientist Reviewer, Peer Reviewed Medical Research Program, Clinical Trial Award
Department of Defense Congressionally Directed Medical Research Program

2014	Reviewer, Special Emphasis Panel ZGH1 HMS 03 Conducting Public Health Research in China, and Conducting Public Health Research in Thailand by the Ministry of Public Health (MOPH) Center for Global Health, Centers for Disease Control and Prevention
2014	Scientist Reviewer, Peer Reviewed Medical Research Program, Malaria Discovery Award Department of Defense Congressionally Directed Medical Research Program
2014 – 2015	Member, Data Safety and Monitoring Board, Sabin Vaccine Institute, Washington, D.C., for the clinical trial “Phase 1 Study of the Safety and Immunogenicity of <i>Na</i> -GST-1/Alhydrogel®, with or without a CpG ODN adjuvant, in Healthy Adults”
2014 – present	Judge, Young Investigator Award Competition, Annual Meeting of the American Society of Tropical Medicine and Hygiene
2015	Scientific Merit Reviewer, Special Emphasis Panel ZGH1 HMS 01 Conducting Public Health Research in Kenya Center for Global Health, Centers for Disease Control and Prevention
2015	Scientist Reviewer, Medical Research Council, UK, Biomedical Catalyst DPFS/DCS
2015	Scientific Merit Reviewer, Special Emphasis Panel, 2016/01 Council ZGH1 HMS 01 Conducting Public Health Research in Georgia Center for Global Health, Centers for Disease Control and Prevention
2015 – present	Expert consultant to law firm on malpractice cases regarding infectious diseases
2016	Reviewer, Special Emphasis Panel/Scientific Review Group 2016/05 ZAI1 RRS-M (M1) National Institute of Allergy and Infectious Diseases Special Emphasis Panel
2016 – 2017	Associate Editor, Clinical and Vaccine Immunology, American Society of Microbiology
2016	Scientist Reviewer, Peer Reviewed Medical Research Program, Malaria Review Panel Department of Defense Congressionally Directed Medical Research Program
2016	External Reviewer, New surveillance tool for malaria elimination in Bangladesh, China and Myanmar International Centre for Diarrhoeal Disease Research, Bangladesh
2016	Workshop Panelist, Clinical Trial Design Considerations for Malaria Drug Development, U.S. Food and Drug Administration, Silver Spring, Maryland, June 30, 2016
2016	Scientific Merit Reviewer, Assistant Secretary of Defense for Health Affairs/Defense Health Agency/Uniformed Services University of the Health Sciences/Center for Global Health Engagement Research Program (GHESPR16)
2016	Scientific Organizing Committee Member, Second International Alliance for Biological Standardization (IABS) Human Challenge Trial Workshop
2016	Participant, 3 rd Global Task Force for Cholera Control (GTFCC) Oral Cholera Vaccine (OCV) Working Group Meeting, December 14, 2016, Geneva, Switzerland
2016 – present	Member, Global Burden of Disease collaborator network, Institute for Health Metrics and Evaluation
2017	Scientist Reviewer, FY 18 Military Infectious Diseases Research Program (MIDRP), Panel F- Malaria Vaccine Research
2017 – present	Independent Medical Reviewer, State and Federally Mandated External Medical Reviews
2017	Expert consultant to GE Oil & Gas for malaria diagnostics, treatment and prophylaxis

2017 Scientist Reviewer, Peer Reviewed Medical Research Program, Malaria Review Panel
Department of Defense Congressionally Directed Medical Research Program

2017 Scientist Reviewer, Peer Reviewed Medical Research Program, Malaria Discovery Award Review Panel
Department of Defense Congressionally Directed Medical Research Program

2017 Temporary Member, Vaccines Against Microbial Diseases Study Section, Immunology Integrated Review Group,
2018/01 VMD, Center for Scientific Review, National Institutes of Health

2017 – 2018 Reviewer, Special Emphasis Panel/Scientific Review Group 2018/05 ZAI1 MFH-M (M1)
National Institute of Allergy and Infectious Diseases Special Emphasis Panel

2017 – present Member, Education Committee, Pediatric Infectious Diseases Society (PIDS)

2018 Reviewer, Special Emphasis Panel/Scientific Review Group 2018/05 ZRG1 IDM-X (02) M
National Institute of Allergy and Infectious Diseases Special Emphasis Panel

2018 Reviewer, National Fellowships Committee for Graduate Women in Science

2018 Reviewer, Special Emphasis Panel/Scientific Review Group 2018/05 ZAI1 MFH-M (S2)
National Institute of Allergy and Infectious Diseases Special Emphasis Panel

2018 Scientist Reviewer, Peer Reviewed Medical Research Program, Malaria Review Panel
Department of Defense Congressionally Directed Medical Research Program

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Department of Defense Congressionally Directed Medical Research Program

2018 Scientist Reviewer, Else Kröner-Fresenius Foundation, Bad Homburg, Germany

2018 Scientist Reviewer, Transforming Technology for the Warfighter Program 2018/08 ZRG1 ETTN-U (84), Uniformed
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1997 Lecturer, Small Area Analysis, (30 State and local health department personnel), Denver, Colorado, 20 contact
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hours/week

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University of Maryland School of Medicine

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1 fellow or resident
8 sessions per year

Medical Student Teaching

2007 – present Facilitator, MSPR 520 Host Defense and Infectious Diseases, Small Group Sessions (20, 2nd year medical students),
7 contact hours per year

2009 – 2013 Instructor, MSPR 520 Host Defense and Infectious Diseases (40, 2nd year medical students)
Topic: Malaria microscopy, 3 contact hours

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Topics: HIV-malaria interactions, malaria microscopy, 4 contact hours

2015 – present Instructor, MSPR 520 Host Defense and Infectious Diseases (150, 2nd year medical students)
Topic: Parasitology laboratory practicum, 4 contact hours

2016 – present Lecturer, MSPR 520 Host Defense and Infectious Diseases (150, 2nd year medical students)
Topic: Malaria, 1 contact hour

Graduate Student Teaching

2013 Facilitator, Introduction to Vaccinology Course, GPILS PREV 627, 30 students
Topic: The Anti-Vaccine Movement, 1 contact hour

2015 – present Facilitator, Research Ethics CIPP907, University of Maryland Baltimore Center for Interprofessional Education,
Small Group Sessions (12, interprofessional students), 2-4 contact hours per year

2015 – present Lecturer, Introduction to Vaccinology Course, GPILS PREV 627, 30 students
Topic: Clinical Evaluation Phases 1, 2, 3, 4; 1 contact hour

Resident Teaching

2006 Lecturer, Mini-core lecture series (45, pediatric house staff)
Topic: Hepatitis, 1 contact hour

2010 – present Lecturer, Mini-core lecture series (45, pediatric house staff)
Topics: Tetanus, Rabies and Botulism and Infectious Disease Cases, 2 contact hours

2011 – present Lecturer, Mini-core lecture series (45, pediatric house staff)
Topic: Infectious Disease Teasers, 2 contact hours

2012 Lecturer, Pediatric Case Report lecture series (45, pediatric house staff)
Topic: Kawasaki Disease, 1 contact hour

2012 – present Lecturer, Pediatric Board Review Course lecture series (45, pediatric house staff)
Topic: Infectious Diseases for the Pediatric Boards, 2 contact hours

2014 Lecturer, Pediatric Case Report lecture series (45, pediatric house staff)
Topic: Aspergillus infections, 1 contact hour

2016 Lecturer, Pediatric Case Report lecture series (45, pediatric house staff)
Topic: Zika virus infection, 1 contact hour

2016 – present Lecturer, Mini-core lecture series (45, pediatric house staff)
Topics: Pediatric Vaccinations I and II, 2 contact hours

Fellow Teaching

2016 – present Lecturer, Didactic lecture series (10, adult infectious diseases fellows)
Topic: Enteroviruses, 1 contact hour

Significant Mentoring Activities

2006 – present Drissa Coulibaly, MD, MSc, PhD. Research Mentor. Current Position: Research Physician
Malaria Research and Training Center, University of Science, Techniques and Technology, Bamako, Mali

2009 – present Mark Travassos, MD, MSc, Pediatric Infectious Diseases Fellow (2007-2010). Current position: Assistant Professor
(2015) University of Maryland. Previous position: Pediatric Infectious Diseases Fellow, University of Maryland
School of Medicine (2007-2010).

2011 – 2012 Rakshit Shetty, MBBS, MS. Research mentor. Previous position: Research Associate, Center for Vaccine
Development, University of Maryland School of Medicine (2011-2012). Current Position: Critical Care Medicine
Attending, Mercy Hospital St. Louis, Saint Louis, Missouri.

2011 – present Randy G. Mungwira, MBBS, MPH. Research mentor. Previous position: Research Physician (2011-2017) Ndirande
Research Clinic, Blantyre Malaria Project, Blantyre, Malawi. Current position: Student, Master in Vaccinology and
Pharmaceutical Clinical Development, University of Siena, Italy.

2011 – present Titus H. Divala, MBBS, MPH, MSc. Research co-mentor. Previous position: Research Physician (2012-2017)
Ndirande Research Clinic, Blantyre Malaria Project, Blantyre, Malawi. Current position: PhD Candidate. London
School of Hygiene and Tropical Medicine.

2012 Mary A. Boyd, MD. Scientific writing mentor. Current position: Medical Officer, U.S. Food and Drug
Administration (2013-present). Previous position: Pediatric Infectious Diseases Fellow, University of Maryland
School of Medicine (2010-2013).

2012 Debbie A. Shirley, MD, MPH. Scientific writing mentor. Current position: Assistant Professor, Department of
Pediatrics, University of Virginia School of Medicine (2013-present). Previous position: Pediatric Infectious
Diseases Fellow, University of Maryland School of Medicine (2009-2013).

2013 – 2016 Aubrey Kudzala, MMEDsc student. Thesis research project mentor, A study of neutropenia and the associated
factors amongst HIV positive patients receiving anti-retroviral therapy and care at Ndirande Health Centre, Blantyre,
Malawi. Current position: Beit Postgraduate Scholar, University of Stellenbosch, South Africa.

- 2015 – 2017 Sindhura Thatipelli, MD. Pediatrics specialty mentor. Current position: Pediatric Gastroenterology Fellow, University of California San Diego. Previous position: Pediatric Resident, University of Maryland School of Medicine (2014-2017).
- 2016 – present DeAnna Friedman-Klabanoff, MD. Research Mentor. Current Position: NIH Ruth L. Kirschstein National Research Service Award recipient as a T32 Fellow in Vaccinology, and, Fellow, Pediatric Infectious Diseases and Tropical Pediatrics, University of Maryland School of Medicine, Baltimore, Maryland.
- 2017 Laura Morrison, Pediatric Infectious Diseases research mentor for “Effect of maternal immunization on infant protection for pertussis and influenza.” Current position: First year pediatrics resident at Jackson Memorial Hospital, University of Miami Miller School of Medicine.

Children’s National Medical Center, Washington, DC

- 2011 Lecturer, Introduction to Global Child Health Elective (20, pediatric faculty, house staff and nursing students), Topic: Malaria in children, 2 contact hours
- 2012 Lecturer, Introduction to Global Child Health Elective (20, pediatric house staff and nursing students), Topic: Malaria in children, 4 contact hours
- 2013 Lecturer, Introduction to Global Child Health Elective (20, pediatric house staff and nursing students), Topic: Malaria in children, 2 contact hours
- 2014 Lecturer, Introduction to Global Child Health Elective (20, pediatric house staff and nursing students), Topic: Malaria in children, 2 contact hours
- 2015 Lecturer, Introduction to Global Child Health Elective (20, pediatric house staff and nursing students), Topic: Malaria in children, 4 contact hours
- 2016 Lecturer, Introduction to Global Child Health Elective (20, pediatric house staff and nursing students), Topic: Malaria in children, 2 contact hours
- 2017 Lecturer, Introduction to Global Child Health Elective (20, pediatric house staff and nursing students), Topic: Malaria in children, 4 contact hours

Friends School of Baltimore

- 2015 – present Served as Infectious Diseases Expert for Infectious Diseases Grand Rounds presented individually by each sixth grade student, 5 contact hours

Publications (* primary author; # senior author)

Peer-reviewed journal articles

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67. Travassos MA, Berry AA, Coulibaly D, Pike A, Bailey JA, Stucke EM, Dara A, Agrawal S, Ouattara A, Tolo Y, Lyke KE, Laurens MB, Adams M, Takala-Harrison S, Niangaly A, Kouriba B, Kone AK, Rowe A, Doumbo OK, Thera MA, Nyunt MM, Felgner PL, Patel JJ, Tan JC, Plowe CV. Identification of PfEMP1 epitopes associated with severe malaria using a diversity-covering ultradense peptide microarray. Program and Abstracts of the American Society of Tropical Medicine and Hygiene 66th Annual Meeting, 2017. Abstract 1664.
68. Bailey JA, Tan JC, Pike A, Ouattara A, Adams M, Travassos MA, Coulibaly D, Kone AK, Traore K, Bannen RM, Patel JJ, Laurens MB, Takala-Harrison S, Lyke KE, Dutta S, Niangaly A, Kouriba B, Thera MA, Felgner PL, Berry AA, Doumbo OK, Plowe CV. Program and Abstracts of the American Society of Tropical Medicine and Hygiene 66th Annual Meeting, 2017. Abstract 1723.
69. Laurens MB, Ouédraogo A, Tiono AB, Kaboré JM, Bougouma EC, Ouédraogo NI, Billingsley PF, Manoj A, Abebe Y, Richie TL, James ER, Lyke KE, Plowe CV, Sim BKL, Hoffman SL, Sirima SB. Safety and tolerability of a metabolically active, non-replicating, whole-organism malaria vaccine in malaria-experienced adults in Burkina Faso. 7th MIM Pan-African Malaria Conference, 2018.
70. Coulibaly D, Kone AK, Traore K, Lyke KE, Plowe CV, Abebe Y, Kennedy JK, Potter GE, Nomicos E, Deye GE, Richie TL, James ER, Sim BKL, Hoffman SL, Doumbo OK, Thera MA, Laurens MB. Safety, tolerability, immunogenicity and efficacy against *Plasmodium falciparum* (Pf) malaria in Malian adults of immunization with infectious, cryopreserved Pf sporozoites administered under chloroquine chemoprophylaxis (PfSPZ-CVac). 7th MIM Pan-African Malaria Conference, 2018.
71. Bougouma EC, Soulama I, James ER, Abebe Y, Ouedraogo A, Tiono AB, Koutiebou R, Albert G, Kaboré JM, Billingsley CV for Matthew Brent Laurens, MD, MPH

PF, Manoj A, Richie TL, Lyke KE, Plowe CV, Jones W, Deye GA, Sim BKL, Laurens MB, Hoffman SL, Sirima SB. Experience in managing Sanaria® PfSPZ Vaccine: A randomized, double-blind, placebo-controlled Phase 1 clinical trial to evaluate the safety and immunogenicity of PfSPZ Vaccine in malaria-experienced adults in Burkina Faso. 7th MIM Pan-African Malaria Conference, 2018. Abstract 1146.

72. Coulibaly D, Travassos MA, Tolo Y, Laurens MB, Kone AK, Traore K, Sissoko M, Niangaly A, Diarra I, Daou M, Guindo B, Rebaudet S, Kouriba B, Dessay N, Piarroux R, Plowe CV, Doumbo OK, Thera MA, Gaudart J. Spatio-temporal pattern of malaria in Bandiagara, Mali from 2009-2014. 7th MIM Pan-African Malaria Conference, 2018.
73. Tisirizani L, Nyangulu W, Nyirenda OM, Nampota N, Mkandawire FA, Singogo E, Mallewa J, Laurens MB, Taylor TE, Laufer MK, van Oosterhout JJ. Incidence of adverse events associated with isoniazid preventive therapy in adults on ART in Blantyre, Malawi. 22nd International AIDS Conference, 2018.
74. Bougouma EC, Soulama I, James ER, Abebe Y, Ouedraogo A, Tiono AB, Koutiebou R, Albert G, Kabore JM, Billingsley PF, Manoj A, Richie TL, Lyke KE, Plowe CV, Jones W, Deye GA, Sim BKL, Laurens MB, Hoffman SL, Sirima SB. Experience in managing Sanaria® PfSPZ Vaccine: A randomized, double-blind, placebo-controlled Phase 1 clinical trial to evaluate the safety and immunogenicity of PfSPZ Vaccine in malaria-experienced adults in Burkina Faso. Program and Abstracts of the American Society of Tropical Medicine and Hygiene 67th Annual Meeting, 2018. Abstract 1146.
75. Berry AA, Travassos MA, Ouattara A, Adams M, Coulibaly D, Jain A, Obiero JM, Taghavian O, Laurens MB, Takala-Harrison S, Kouriba B, Koné AK, Thera MA, Sim BKL, Hoffman SL, Plowe CV, Doumbo OK, Felgner PL, Lyke KE. *Plasmodium falciparum* infection induces measurable IgA responses on protein microarrays. Program and Abstracts of the American Society of Tropical Medicine and Hygiene 67th Annual Meeting, 2018. Abstract 353.
76. Laurens MB, Ouédraogo A, Tiono AB, Kaboré JM, Bougouma EC, Ouédraogo NI, Billingsley PF, Manoj A, Abebe Y, Richie TL, James ER, Lyke KE, Plowe CV, Kennedy JK, Potter GE, Jones W, Sim BKL, Hoffman SL, Sirima SB. Protective efficacy of the PfSPZ Vaccine against endemic malaria-experienced adults in Burkina Faso. Program and Abstracts of the American Society of Tropical Medicine and Hygiene 67th Annual Meeting, 2018. Abstract 1147.
77. Coulibaly D, Kone AK, Traore K, Lyke KE, Plowe CV, Abebe Y, Kennedy JK, Potter GE, Nomicos E, Deye GE, Richie TL, James ER, Sim BKL, Hoffman SL, Doumbo OK, Thera MA, Laurens MB. Safety, tolerability, and protective efficacy of PfSPZ-CVac against endemic malaria among malaria-experienced adults in Mali. Program and Abstracts of the American Society of Tropical Medicine and Hygiene 67th Annual Meeting, 2018. Abstract 1148.
78. Friedman-Klabanoff DJ, Laurens MB, Berry AA, Travassos MA, Adams M, Strauss KA, Shrestha B, Levine MM, Edelman R, Lyke KE. A review of the Controlled Human Malaria Infection trials at the University of Maryland. Program and Abstracts of the American Society of Tropical Medicine and Hygiene 67th Annual Meeting, 2018. Abstract 1357.
79. Travassos MA, Niangaly A, Bailey JA, Berry AA, Ouattara A, Coulibaly D, Lyke KE, Laurens MB, Zhou AE, Stucke EM, Pablo J, Jasinskas A, Nakajima-Sasaki R, Adams M, Takala-Harrison S, Kouriba B, Koné AK, Rowe JA, Diallo DA, Doumbo OK, Felgner PL, Thera MA, Plowe CV. Malian children with hemoglobin C or S trait recognize fewer extracellular PfEMP1s than children with hemoglobin AA, but differ in recognition of CD36-binding PfEMP1s. Program and Abstracts of the American Society of Tropical Medicine and Hygiene 67th Annual Meeting, 2018. Abstract 1687.
80. Zhou AE, Berry AA, Bailey JA, Pike AA, Dara A, Agrawal S, Ouattara A, Coulibaly D, Lyke KE, Laurens MB, Adams M, Takala-Harrison S, Pablo J, Jasinskas A, Nakajima-Sasaki R, Niangaly A, Kouriba B, Koné AK, Rowe JA, Doumbo OK, Thera MA, Patel JJ, Tan JC, Felgner PL, Plowe CV, Travassos MA. Serorecognition and seroreactivity to peptides within the semi-conserved and variable regions of STEVORs reflect cumulative and seasonal malaria exposure in Malian adults and children. Program and Abstracts of the American Society of Tropical Medicine and Hygiene 67th Annual Meeting, 2018. Abstract 1781.
81. Stucke E, Dara A, Dwivedi A, Hodges T, Coulibaly D, Koné AK, Traoré K, Guindo B, Tangara BM, Niangaly A, Daou M, Diarra I, Tolo Y, Sissoko M, Laurens MB, Ouattara A, Kouriba B, Doumbo OK, Takala-Harrison S, Thera MA, Plowe CV, Travassos MA, Silva JC. A novel method for identifying predominantly expressed *vars* from whole blood clinical samples. Program and Abstracts of the American Society of Tropical Medicine and Hygiene 67th Annual Meeting, 2018. Abstract 2050.

Other Brief Communications

1. Laurens MB*. Folic Acid Fortification and Vitamin B₁₂ Deficiency. AMA Resolution 506 (I-98), 1998.

Media

1. Interviewed and quoted in The Verge “Malaria vaccine found 67 percent effective in human trial”, May 6, 2015.
2. Interviewed and quoted in Inside Science “Nobel Prize Honors Fight Against Parasites”, October 12, 2015.

3. Interviewed and quoted in The Washington Post “Unsettling finding from CDC investigation: Tapeworms can transmit cancer cells to humans”, November 5, 2015.
4. Laurens MB*. How can a tapeworm cause cancer? Invited CNN online opinion article. November 9, 2015.
5. Interviewed and quoted in The Baltimore Sun “Zika virus alarms public health authorities internationally”, January 28, 2016.
6. Interviewed by WMAR ABC2 Baltimore news “Concern about the Zika virus creeps closer to home”, February 5, 2016.
7. Interviewed by WBFF Fox45 Baltimore news “Zika virus spreads to the U.S. as concerns continue to grow”, February 5, 2016.
8. Interviewed and quoted by Celia Vimont, Practical Pain Management, “What you need to know about Zika and pain”, February 9, 2016.
9. Interviewed and quoted by Amanda Ota, Sinclair Broadcast Group, “Experts explain \$1.8 billion to fight Zika virus”, February 9, 2016.
10. Interviewed by Maryland Public Television’s Jeff Salkin, Direct Connection, Your Health Segment, “The Zika Virus: How You Get It, What It Does, and How to Avoid It”, February 29, 2016.
11. Interviewed and quoted by Margaret Jones, BioTechniques, “Vaccines May Aid Malaria in Establishing an Infection”, July 19, 2016.
12. Interviewed and quoted in the Baltimore Sun “Hopkins researchers find further link between Zika, neurological problems in adults”, October 5, 2016.
13. Interviewed and quoted by Robbie Greenspan, Capital News Service, “Maryland Focuses on Zika”, October 28, 2016.
14. Interviewed and quoted in the Voice of America “Test-tube Immune Systems Can Speed Vaccine Development”, July 24, 2017.
15. Interviewed and quoted in Zodiak Online “Malawi Rolls Out First Typhoid Vaccine Trial”, February 22, 2018.
16. Interviewed and quoted in BBC news “Malaria: a reliable 38% vaccine has been tested in Burkina Faso and Mali”, April 23, 2018.

Major Invited Speeches

Local

1. Evaluation of a pediatric patient with a limp. Pediatric Grand Rounds, Department of Pediatrics, Tulane University School of Medicine, November 2004, New Orleans, Louisiana.
2. Randomized, controlled Phase 2 clinical trial to evaluate the safety, immunogenicity and efficacy of the AMA1 candidate malaria vaccine antigen FMP2.1/AS02_A vs. rabies vaccine in 1-6 year old children in Bandiagara, Mali. Frontiers in Vaccinology, Center for Vaccine Development, University of Maryland School of Medicine, December 7, 2010, Baltimore, Maryland.
3. Antimicrobial Stewardship. Grand Rounds, Department of Pediatrics, University of Maryland School of Medicine, April 21, 2011, Baltimore, Maryland.
4. New Bugs, New Drugs. First Annual Pediatric Nursing Education Symposium, University of Maryland Children’s Hospital, November 2, 2012, Baltimore, Maryland.
5. Advice, Vaccination and Prophylaxis: Preparing Children for International Travel. Pediatric Grand Rounds, Saint Agnes Hospital, September 26, 2014, Baltimore, Maryland.
6. The Ebola Virus in West Africa: Is There No End in Sight? Hollybush Institute Talks. Rowan University, October 6, 2014, Glassboro, New Jersey.
7. Pediatric International Travel. Pediatric Grand Rounds, Mercy Hospital, May 15, 2015, Baltimore, Maryland.
8. Zika Virus Fact Sheet. Enoch Pratt Free Library, June 29, 2016, Baltimore, Maryland
9. Congenital Syphilis- a New Wave. Pediatric Grand Rounds, Mercy Hospital, November 4, 2016, Baltimore, Maryland.
10. Malaria Challenges: Whole Organism Approaches in Baltimore and West Africa. University of Maryland School of Medicine, November 17, 2017, Baltimore, Maryland.
11. Congenital Syphilis: The Great Masquerader on the Rise. Pediatric Grand Rounds, University of Maryland School of Medicine, January 4, 2018, Baltimore, Maryland.

National

1. Malaria Challenges. Annual NIH Vaccine Treatment and Evaluation Unit Conference, November 14, 2017, St. Louis, Missouri.
2. PfSPZ-CVac in Malian Adults: Efficacy Results from the First Field Trial. U.S. National Institutes of Health, Division of Microbiology and Infectious Diseases, Annual Meeting of the Vaccine and Treatment Evaluation Units, May 3, 2018, Rockville, Maryland.

International

1. Patient Contribution to the Treatment of Sjögren's Syndrome. The VIIIth International Symposium on Sjögren's Syndrome, May 16-18, 2002, Kanazawa, Japan.
2. The interaction between HIV and malaria. Malawi-Liverpool-Wellcome Trust Clinical Research Laboratory, 2007, Blantyre, Malawi.
3. Malaria vaccine safety signals from non-RTS,S malaria vaccine trials. WHO Global Advisory Committee on Vaccine Safety, June 17, 2009, Geneva, Switzerland.
4. The interaction between HIV and malaria: what we still don't know. Symposium: Launching careers in tropical disease research: progress reports from Burroughs Wellcome Fund / American Society of Tropical Medicine and Hygiene fellows. American Society of Tropical Medicine and Hygiene 58th Annual Meeting, November 22, 2009, Washington, D.C., USA.
5. PfSPZ Vaccine optimized regimen in Burkinabe adults; and *P. vivax* cross-protection. International PfSPZ Consortium Meeting, March 11-12, 2015, Tübingen, Germany.
6. Parasite diagnosis and detection. International PfSPZ Consortium Meeting, October 29-30, 2015, Philadelphia, Pennsylvania.
7. Tips and Tricks in the CHMI Model. Controlled Human Infection Models Workshop, Leiden University Medical Center, May 4-6, 2016, Leiden, Netherlands.
8. Pediatric Tetanus. Zomba Clinical HIV Meeting, Zomba Central Hospital, July 14, 2016, Zomba, Malawi.
9. RTS,S Long-Term Efficacy. Malaria Epidemiology Group Conference, Malawi Liverpool Wellcome Trust, July 15, 2016, Blantyre, Malawi.
10. Considerations for use of a malaria vaccine. Estimating the full public health value of vaccines, Fondation Merieux, December 6, 2016, Les Pensières, Annecy, France.
11. CVD 103-HgR Update. 3rd Global Task Force for Cholera Control (GTFCC) Oral Cholera Vaccine (OCV) Working Group Meeting, World Health Organization, December 14, 2016. Geneva, Switzerland.
12. PfSPZ Vaccine efficacy in Malian Adults. Malaria Epidemiology Group Conference, Malawi Liverpool Wellcome Trust, May 25, 2017, Blantyre, Malawi.
13. The History of Typhoid Vaccine Acceleration Consortium (TyVAC). Malawi Liverpool Wellcome Trust, January 10, 2018, Blantyre, Malawi.
14. A Clinical Trial of Conjugate Typhoid Vaccine in Burkinabe children. Typhoid Vaccine Acceleration Consortium Annual Meeting, April 11, 2018, Kathmandu, Nepal.
15. Safety, tolerability and efficacy of a metabolically active, non-replicating, whole organism malaria vaccine (PfSPZ Vaccine) in malaria-experienced adults in Burkina Faso. Seventh Multilateral Initiative on Malaria Conference, April 18, 2018, Dakar, Senegal.
16. The role of Controlled Human Malaria Infection in malaria vaccine development. 4th International Conference on Vaccines Research & Development. November 13-15, 2018, Baltimore, Maryland, USA.